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ABSTRACT

This document contains four papers from a symposium on evaluation in human resource development (HRD). The first paper, "HRD Evaluation as the Catalyst for Organizational Learning" (Hallie Preskill), argues that HRD practitioners must stop considering evaluation a periodic event focused on a narrow set of variables and begin viewing it as an ongoing process of evaluative inquiry. "A Qualitative and Quantitative Approach to Evaluating Leadership Training" (Lilanthi Ravishankar, Zenger Miller) reports on a research project that evaluated a modular leadership program as part of a beta testing process, tested a blended qualitative and quantitative approach to data analysis, and demonstrated the blended approach's utility in evaluating HRD activities. "Development and Evaluation of the Critical Outcome Technique (COT)" (Richard A. Swanson, Brent W. Mattson) describes the COT, which is metaphorically similar to the critical incident technique but functions within the milieu of an ongoing organization and yields verifiable and quantifiable data on critical outcomes. "Monitoring the Effectiveness of a Performance-Focused Human Resource Development Workshop at Andersen Consulting Three Months after the Workshop" (Joel R. Montgomery) reports on a study that measured the effectiveness of an integrative learning workshop presented to 506 North American HRD professionals. (MN)

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ACADEMY OF HUMAN RESOURCE DEVELOPMENT

1997 Conference Proceedings

March 6-9, 1997
Atlanta, GA

2 **Evaluation in HRD**

Chair: Tim L. Wentling, University of Illinois

HRD Evaluation as the Catalyst for Organizational Learning
Hallie M. Preskill, University of New Mexico

A Qualitative and Quantitative Approach to Evaluating Leadership Training
Lilanthi Ravishankar, Zenger Miller

Development and Evaluation of the Critical Outcome Technique (COT)
Richard A. Swanson, University of Minnesota
Brent W. Mattson, University of Minnesota

Monitoring the Effectiveness of a Performance-Focused Human Resource Development Workshop at Andersen Consulting Three Months After the Workshop
Joel R. Montgomery, Andersen Consulting, AHRD Global 100 Member

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HRD Evaluation as the Catalyst for Organizational Learning

Hallie Preskill
University of New Mexico

As the HRD field continues to focus on performance and learning, supported by the belief that HRD should strategically support the organization's mission and goals, then HRD evaluation must evolve as well. Evaluation must be viewed as a means for achieving sustained organizational growth. This paper argues that HRD evaluation must broaden its conception of evaluation from being a periodic event focused on a narrow set of variables to an ongoing process of evaluative inquiry.

There is little doubt that today's organizations are experiencing unprecedented changes in how they define themselves and accomplish their work. No where are these changes more evident than in organizations' training and development departments. HRD professionals are now being called on to: 1) move from training to performance improvement, 2) keep up with the pace of reengineering, 3) manage and train current and new employees, 4) maximize training technologies, 5) facilitate learning to achieve the organization's goals, and 6) know their organization's business inside and out. (Bassi, Benson and Cheney, 1996) All of this is occurring in the midst of downsizing, outsourcing, budget cutting, and frequent turnover in the leadership of many organizations.

HRD professionals are also increasingly being asked to show how their efforts add value to the organization. In many companies, evaluation of training is thought to be the most appropriate method of demonstrating this value. Several surveys of organization's involvement in training program evaluation have recently been conducted. For example, Training Magazine's October, 1996 Industry Report (p. 63), found that U.S. organizations are heavily involved in evaluating their training programs. Using Kirkpatrick's (1959 a, b, 1960 a, b) four level model, 86% of all organizations measure participants' reactions to 83% of their courses, 71% test participants' learning in 51% of their courses, 65% evaluate changes in behavior back on the job for 50% of their courses, and 49% measure business results for 44% of their courses. However, findings from the American Society for Training and Development's (ASTD) Benchmarking study found that 94% of the respondents collected participant reaction information, 34% measured learning, 13% evaluated transfer of learning and only 3% were evaluating financial impacts from training. (Bassi, et al., 1996, p. 37) While these figures differ significantly, they do point to evidence of a growing interest in training program evaluation. Given that estimates of training provided in the public and private sectors is now equaling $55.3 billion (Benson, 1996, p. 58), HRD professionals have an ethical obligation, if not a pragmatic one, to invest in developing effective evaluation systems for the organization's learning efforts.

In this paper I argue that HRD practitioners should become facilitators of individual, team and organizational learning through Evaluative Inquiry. This argument is based on a review of the training program evaluation research and the organizational learning literatures. Findings from a survey of U.S. and Canadian evaluators are also presented to further support this role for HRD professionals. The final section of this paper proposes a model of evaluation labeled "Evaluative Inquiry for Learning in Organizations" that broadens evaluation activity from an event-focused practice to an ongoing, collaborative learning, continuous change process.

Research Questions

The following questions guided this research study:

1. What is the status of HRD evaluation research?
2. What is the role and purpose of HRD evaluation in changing organizations?

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3. What is the relationship between HRD evaluation and organizational learning?
4. How can HRD evaluation facilitate increased performance and learning in organizations?

Research Design, Methods and Data Analysis

To answer the above research questions, a literature review and mail survey were conducted.

Literature Review A review of the HRD evaluation literature from 1959 to the present was conducted to understand the history of training evaluation model development and subsequent evaluation research studies (Hilbert, Preskill and Russ-Eft, forthcoming). The review involved searching several databases including Education Research Information Center (ERIC), the Internet, ASTD Index of Literature, Business Periodical Index, and PsychInfo. Conference proceedings from the Academy of Human Resource Development and various published books were also reviewed. Since we were interested in locating and reviewing scholarly work, principally in the form of literature reviews, qualitative case studies and empirical research, we did not include articles from practitioner oriented publications such as Training or Training & Development Magazines. While these periodicals offer many ideas and advice to HRD professionals, they do not necessarily represent the findings of research studies. We identified approximately 90 evaluation research oriented articles published since 1959.

Mail Survey In an effort to understand practicing evaluators' current and developing conceptions of evaluation use, a survey of 521 U.S. and Canadian evaluators who are members of the American Evaluation Association's (AEA) Evaluation Use Topical Interest Group was conducted in May, 1996 (Preskill & Caracelli, 1996).[1] A thirteen page survey was developed over a three month period by a group of eleven AEA members. After three pilot tests and six iterations, the survey was mailed with a postage-paid return envelope. The survey covered issues regarding evaluation's purpose and role in organizations, the use and misuse of evaluation findings, approaches to evaluation, and strategies to facilitate the use of evaluation findings. After one follow-up mailing, a response rate of 49% (n=257) was obtained.

The Likert scale survey data were entered into the Pulsesurvey® data analysis program developed by Scantron. Descriptive statistics were computed for each item. The data were then transferred into a SAS program and were further analyzed by computing cross-tabs and chi square analyses for independence on the actual distribution from the expected distribution for several items.

Findings

HRD Evaluation Research Literature For the last forty years, Kirkpatrick's four level evaluation model (1959 a, b, 1960 a, b) has been the focus of conceptualizing and practicing HRD program evaluation. Briefly stated, Kirkpatrick suggested that to simplify training evaluation, trainers should evaluate their programs according to four levels: 1) participants' reactions, 2) participants' learning, 3) participants' behavioral changes, and 4) business results. Kirkpatrick's four level model has been the most often used and referenced approach to training program evaluation. The review of the research literature found 57 journal articles describing or mentioning evaluation models published between 1959 and 1996. Of those, 44 (77%) included Kirkpatrick's model (either alone or in comparison with another model). Only thirteen articles discussed a model other than Kirkpatrick's. Of the 57 articles, 21 different models were published

[1] The American Evaluation Association is the professional organization for evaluators who claim evaluation to be their primary, secondary or tertiary professional identity. Formed in 1985 from the Evaluation Network and Evaluation Research Society, it currently has approximately 2100 members from around the world. It hosts an annual conference which typically draws 800-1000 participants.

during this time period. Most of these models attempt to measure some aspect of participants' reactions, motivation, learning, knowledge and skill transfer, financial results and general organizational impact. Most however, are not true models that suggest hypotheses, relationships between variables or are testable in ways that would produce generalizable results. Instead they tend to be taxonomies or classification schemes that offer trainers a framework for evaluating training programs. One exception may be the HRD Evaluation Research and Measurement Model proposed by Holton (1996). While his model, too, resembles those proposed by Kirkpatrick (1959 a, b, 1960, a, b), Brinkerhoff (1989), and Hamblin (1974), he goes further by explicitly linking learning, individual performance and organizational results to primary and secondary influences. By acknowledging the potential impact of various organizational variables, Holton's evaluation model offers researchers a more comprehensive model to explore the effects of training.

While Kirkpatrick originally did not state that the model was hierarchical, it has been widely accepted that if participants liked the training, they will have learned. If they have learned, they are more likely to transfer their learning to the job, and by inference, the organization will have accrued some benefits. Yet the majority of research that has been conducted on HRD evaluation has focused on looking for evidence of this hierarchy. Though some studies have tentatively established relationships between two of the levels, such as the correlation between participants' reactions and their learning (Clement, 1982; Baldwin, Magjuka and Loher, 1991), other research does not support the hierarchical model (Dixon, 1990; Noe & Schmitt, 1986; Warr & Bunce, 1995).

The review of the literature also revealed that the vast majority of these models are not grounded in a philosophy or theory of evaluation (Kraiger, Ford and Salas, 1993). They tend to position evaluation as a periodic event that is the sum of a set of technical skills and activities focused on a narrow set of variables using a limited number of designs and methods. Of particular concern is how little HRD professionals and scholars have tapped other disciplines such as public education and the government or military in their development of evaluation theories, models and approaches. Over the last thirty years, an enormous amount of research has been conducted in the evaluation field manifested by half a dozen evaluation journals (e.g., Evaluation, Evaluation & Program Planning, Evaluation Review). [2] Research on evaluation models, methods, philosophies, ideologies, standards, ethics, utilization, cultural issues and validity have continued to develop outside of the HRD field.

Organizational Learning Literature Several writers predict that the survival of organizations will be based on their ability to learn from their current practices and past experiences. Over the last few years we have witnessed a burgeoning literature on organizational learning and the learning organization. Though the work on organizational learning was first introduced in the management theory literature by Argyris & Schon (1978, 1996) nearly two decades ago, the concept was made popular and accessible by Peter Senge's book, The Fifth Discipline in 1990. While several definitions have been offered, one particular definition captures the interpretive and pragmatic perspective which I believe is most relevant to today's organizations:

> Organizations learn through joint discussion and interpretation of events, and through gradual changes in the assumptions, symbols, and values of participants. In this approach, trials and errors, or actions and outcomes, are important means of learning. (Daft & Huber, 1987, p. 10)

Employees in a learning organization may:

- tend to ask more questions than give solutions/answers
- develop a greater sense of personal accountability and responsibility for the organization's outcomes
- take greater risks
- be more consultative/coaching
- develop creative solutions

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[2] For a detailed history of the evolution of program evaluation, see House (1993).

- be more self-directed learners

As a result, learning organizations:

- develop new products and services better and faster
- have higher morale, improved organizational work climate
- experience improved financial performance
- are able to change more quickly
- increase productivity

The need for shared information and collaboration among organization members is a significant theme throughout the organizational learning literature (Dixon, 1992). As Wheatley (1992) suggests, we need a broad distribution of information, viewpoints, and interpretations if we are to make sense of the world" (p. 64). The importance of information gathering in learning organizations has been discussed by several authors. They suggest that learning organizations:

- are hungry for information and strive to communicate that knowledge with organization members who may benefit from it (Wick & Leon, 1993);
- continually measure how well they are doing and hold organization members accountable for its progress (Brooks & Supina, 1992);
- involve the acquisition of new information and the ability to analyze that information creatively, learn from it, and apply that learning in useful ways (Thompson, 1995, p. 95).

These characteristics can be viewed as supporting a "continuous process of organizational growth and improvement that: a) is integrated with work activities, b) invokes the alignment of values, attitudes, and perceptions among organizational members, and c) uses information or feedback about both processes and outcomes to make changes" (Torres, Preskill & Piontek, 1996, p. 2).

A few HRD scholars are advocating a stronger role for HRD professionals in creating and sustaining learning organizations (Dixon, 1992; Preskill, 1994; Watkins and Marsick, 1992) and high performance work systems (Bassi, et al., 1996; Gephart and Van Buren, 1996). Watkins and Marsick (1992, p. 127) recommend that human resource development professionals embed continuous learning strategies within the organization, teach people how to learn from their experiences, think systemically, conceptualize and plan individual development for multiple organizational futures, monitor and upgrade the overall knowledge/skill set of the whole organization, help people enact more participative, democratic workplaces, and craft politics which make learning continuous, self-regulated, and autonomously funded.

Mail Survey Though the survey was not specifically aimed at HRD professionals, 20% of the respondents identified themselves as working in the private sector. Another 31% are faculty of colleges or universities in various disciplines who typically provide evaluation consulting services to a variety of organizations. It is not the intent here to report all of the findings from this particular study (a more comprehensive summary of the results is in press (Preskill and Caracelli). However, there are specific findings that have significant implications for HRD professionals who wish to broaden the definition and practice of evaluation in changing organizations. They are divided into three categories: 1) the purpose of evaluation, 2) an evaluator's role, and 3) approaches to evaluation.

Purpose of Evaluation Nearly all of the survey respondents strongly agree or agree that the purpose of evaluation is to provide information for decision-making (99%) and to improve programs (99%). Over three-fourths of them also agree that evaluation can be used to facilitate organizational learning (87%) and investigate the merit or worth of an evaluand (80%). Fewer, however believe that evaluation's purpose is to generate new knowledge about evaluation (63%) or to promote social justice (43%).

When asked to indicate the extent to which evaluation contributes to an organization's ability to grow and change, we were presented with an interesting paradox. Respondents rate evaluation as contributing a very great or great extent, to an organization's ability to learn from its experiences (70%), and as being a powerful planned change strategy (59%). Yet fewer respondents think that evaluation results in fundamental changes in how organizations achieve their goals (25%). If organizations do learn from evaluation experiences and evaluation helps facilitate change, how is it that evaluation does not help organizations achieve their goals? Perhaps this indicates a conservatism of evaluators' beliefs about what force evaluation is playing in today's

political, dynamic, chaotic, and rapidly-changing organizations. It is possible they wish for evaluation to be more effective, but find little evidence as of yet to support these outcomes.

Evaluator's Role The survey respondents strongly agree or agree that evaluators should take responsibility for involving stakeholders in the evaluation process (96%), and should facilitate organizational learning (81%). Furthermore, they strongly agree or agree that evaluators should be accountable to intended users of the evaluation for intended uses of the evaluation (71%), should formulate recommendations from evaluation studies (88%), should become involved in evaluation follow-up activities (74%), and should attend to the social consequences of the evaluation (59%).

Approaches to Evaluation Respondents were asked to compare the importance of various evaluation approaches ten years ago with today. Their responses indicate that while still important, summative and objectives-based evaluation approaches are significantly less important today than they were ten years ago. Conversely, formative evaluation, evaluation with an organizational learning emphasis, evaluation based on performance results, participatory and practitioner-centered action research or empowerment forms of evaluation are significantly more important today than they were ten years ago (all chi square analyses are significant at $p<.05$).

These survey results reflect a profound shift in the evaluation community's perspective on evaluation practice. Over the last two decades the concept of what constitutes legitimate and professional evaluation practice has been evolving. Initially we saw the strict application of a social science positivist, experimental design, product-oriented approach with an emphasis on objective value-free, replicable and generalizable, instrumental use of findings. Now, more holistic, naturalistic, qualitative, process-oriented approaches with an emphasis on stakeholder participation and learning are becoming increasingly important. Evaluation approaches such as participatory, empowerment, collaborative and developmental evaluation, positions the evaluator as a facilitator of learning whereby stakeholders and program participants learn about themselves, each other and the program, through their involvement in the evaluation process (Brunner & Guzman, 1989; Cousins & Earl, 1992, Greene, 1988; Patton, 1994, 1996; Shapiro, 1988). Each of these approaches seeks to emphasize learning as an outcome of the evaluation process in addition to the more summative, product-oriented outcomes normally expected of an evaluation study. In this context the evaluator seeks to teach clients and stakeholders evaluation skills and processes so that they may continue to engage in evaluation practice when the "evaluator" has left the scene.

Evaluative Inquiry for Learning In Organizations What we have learned from the HRD evaluation research literature review is that evaluation as it is currently conceptualized, practiced and researched, is not sufficient for answering many of the questions trainers and others have about the effectiveness of an organization's training and development efforts. While the evaluation models have provided some guidelines for training program evaluation, they have proven to be inadequate for promoting ongoing learning in organizations. At the same time, the survey results suggest that evaluators find ways to involve key decision-makers (stakeholders) in the evaluation process, link evaluation to organizational systems and processes, and focus on the usefulness of evaluation data (intended uses for intended users).

In addition to collecting data on a program's effectiveness via the traditionally used methods and models, and in keeping with the need for HRD practitioners to support individual, team and organizational learning efforts, I propose that HRD professionals consider implementing a model of evaluation that focuses on continuous inquiry in their organizations (Preskill and Torres, 1996). The underlying premise of the Evaluative Inquiry model and processes is based on the following:

- inquiry informs learning for and about performance
- inquiry is the process and energy of learning
- inquiry facilitates collection and analysis of data that supports learning
- inquiry has a technology that must be learned
- inquiry should be embedded in organizational culture, structures and processes

Evaluative inquiry requires that organization members critically consider what they think, say and do in the context of the work environment. The following process are the core of Evaluative Inquiry:

- asking questions
- identifying and challenging values beliefs and assumptions
- individual and team reflection
- dialogue
- collecting, analyzing and interpreting data
- action planning
- implementation

For evaluative inquiry to occur, each of these processes must be employed at all times. The processes are interdependent and relational; the success of one of the processes is dependent on the others though they need not follow a linear pattern of practice. As a set of interrelated processes, evaluative inquiry is also a learning system which sustains and institutionalizes learning in organizations. It implies both thought and action, as well as cognitive, behavioral, and affective processes that influence the way we make decisions, solve problems, adapt to change, and meet organizational challenges.

The role of the HRD professional would be to identify the learning and performance issues that need to be addressed (e.g., a request to design a training intervention, why trainees are seemingly not using what they've learned from training back on the job, to plan for future learning experiences that will support the organization's mission). Considering the particular orientation or view of HRD within the organization as described by Russ-Eft (1996) would be one way to identify such issues. Russ-Eft suggests that HRD functions in organizations assume a view of training that influences the objectives and goals of HRD in that organization. Organizations are either predominantly development focused, issue-linked or strategic in their approaches to training. Depending on which view an organization holds for HRD, Evaluative Inquiry processes could be used address key evaluation questions within this framework. HRD professionals would then design these processes, engage organizational members in them, model them, and continually facilitate organization members' capacity to carry out these processes. Evaluation becomes part of the everyday business of HRD professionals instead of a one-shot data collection activity that may or not result in useful findings. The outcome is an organization that uses inquiry processes to share information in ways that foster individual, team and organizational development and growth.

Implications for Practice

For the last four decades HRD evaluation has focused on a narrow set of questions using a limited number of tools and methods. This pattern has led to a constricted view of what HRD evaluation can offer organizations. Just as training departments in organizations have been silos, isolated, set apart from other organizational systems, so has HRD evaluation. Evaluation of training programs has been parochial in its approach and as a result has failed to show HRD's contributions to organizations. As the role of the trainer expands into that of a learning and performance consultant, as organizations seek to do things faster and better, HRD professionals should consider additional and alternative ways of integrating evaluative inquiry into their work. This shift requires establishing a culture of information in the organization, "where information collection, development and utilization becomes a matter-of-fact, ongoing activity for all those working in the organization" (Bhola, 1995, p. 81). It should also look to other disciplines to expand its notion of evaluation theory and practice. As Scriven (1996) eloquently states,

> Evaluation is not only a discipline on which all others depend, it is one on which all deliberate activity depends. It follows that significant improvements in the core concept and techniques of evaluation, of which we have seen many in recent years, and of which many more could be made within the next few years, have the potential for huge improvement in the quality of life and work, as well as in the level of achievement in all disciplines. (p. 404)

Who in the organization knows more about how adults learn, group dynamics, instructional design and development? HRD professionals are uniquely positioned to make evaluation the catalyst for organizational learning.

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A Qualitative and Quantitative Approach to Evaluating Leadership Training

Lilanthi Ravishankar
Zenger Miller

An evaluation of a modular leadership program was undertaken as part of a beta testing process. The major objectives were to determine the impact of the training in terms of learning, skill transfer, and impact on the organization, and to validate the surveys used. A blended qualitative and quantitative approach was also tested. Results indicated that improvements occurred from pre to post training. The blended approach to data analysis was successful in yielding useful information.

The current business climate, which emphasizes the need to account for every dollar spent on training, among other things, has sparked a renewed interest in evaluating and measuring the outcome of HRD programs (Kirkpatrick, 1995; Russ-Eft, Krishnamurthi, & Ravishankar, 1994; Phillips, 1994; May, Moore, & Zammit, 1987).

The demand for evaluation and measurement of HRD interventions has become so widespread and urgent that organizations offering such services have begun to realize that in order to satisfy their customers and meet their needs, it is virtually mandatory to provide means of measuring programs and services to their customers. Such measures, moreover, need to be relatively inexpensive and easy to implement because of personnel and time constraints faced by organizations across the board (Hequet, 1996).

Training programs that cannot easily be evaluated, or more specifically, those organizations that do not offer measurement of training outcomes as part of the HRD interventions themselves, cannot compete effectively with others that do offer measures of effectiveness as a service to their customers. In some instances, organizations choose training programs based upon the measurement services offered, rather than the quality and appropriateness of the training itself. This often results in the training being considered ineffective and discontinued, and thus, the baby thrown out with the bath water. Even worse, employees are deprived of the training or other interventions they really need for them to succeed in the workplace.

In addition, with this focus on evaluating the effectiveness of HRD programs, organizations often neglect other aspects of success in terms of training programs within organizations (Holton, 1996). For example, organizational barriers to practicing newly acquired skills is an aspect of training success that is frequently neglected (Swanson, 1994; Rouiller & Goldstein, 1993). Another critical and often forgotten aspect of training success is the need for the training (Holton, 1995; Sleezer, 1991; McGehee & Thayer, 1961); if trainees do not need the skills being offered, either because they already have a high level of skill or if the skills acquired are not needed on the job, it is likely that an evaluation of behavior change on the job will not yield positive results.

A modular leadership development program designed to be applicable to leaders at all levels in the workplace was released in 1996 by Zenger Miller, a consulting and training company. As an integral part of the final beta testing process for this program, an evaluation of this program was undertaken at six organizations from a cross-section of industries. The participating organizations selected the modules according to the need for such skills in their organizations. An essential component of this testing process was a pre/post evaluation of the training. This evaluation had a threefold objective for both the training provider and the implementing organizations:

a) To determine if the training itself was effective in terms of transfer onto the job, so that the training could be more widely implemented.
b) To demonstrate relatively simple and cost-effective examples of how to measure outcomes from the training. For example, many organizations expressed an interest

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in determining the bottom-line impacts of training. This evaluation demonstrated that such data could be obtained without large investments in terms of time and money.

c) To determine if the evaluation instruments were valid and reliable.

Research Questions

The evaluation of the leadership training program was focused on answering the following questions: Was there improvement in the trainees' knowledge and awareness, as well as in the practice of the skills and behaviors taught in the training program from the perspective of the participants and their managers? Were trainees and managers able to make the link between the skills acquired in training and how they would impact the goals of the work group and the organization as a whole? Do participants see frequent opportunities to practice such skills on the job? And do the trainees and their managers see an impact on the bottom-line with regard to increased productivity when they do apply such skills on the job? What would make training interventions more effective from the perspective of both managers and trainees?

Methodology

We adhered loosely to the Kirkpatrick typology in terms of a framework for this multi-phased evaluation. The major deviation from the Kirkpatrick typology is that the results of the evaluation were intended for use in a formative fashion to modify both the leadership training and the instruments. Phase 1 consisted of gathering levels 1, 2, 3, and 4 data from the 6 organizations that participated in the beta-tests. This paper deals mainly with this first phase of the evaluation. Phase 2 of the evaluation will involve further gathering of data as well as more rigorous statistical analyses with a larger data base to work with. Phase 3 of the evaluation will involve gathering more in-depth level 4 data. This will involve calling back trainees and their managers to ask for specific items such as phone logs, meeting logs, and other documents to obtain more quantitative information that can then be linked to specific quantitative measures such as numbers of hours in productivity gains, percentage decline in complaints, etc.

We surveyed participants in the leadership program before and after the training. The format of the training program is modular and consists of twelve different units. The sample consisted of trainees and their managers from six organizations including banking, manufacturing, healthcare, and education that participated in a pilot of the leadership program.

We did not gather feedback on participants' reactions to the training (level 1), since some research studies have shown that reaction to the training has little bearing on learning of the skills and skill transfer (Bretz & Thompsett, 1992; Dixon, 1990). However, as a corollary to data gathering relative to level 4 results, we obtained information on participants' reactions to the training they received.

To obtain level 2 data, we administered mastery tests to trainees before and after the training. The purpose of the surveys were to determine knowledge and awareness of the concepts covered in training both pre and post training. A total of 105 trainees completed these tests before and 67 after training. The test items were a mix of multiple choice, true/false, and qualitative critical incidents. We devised a scoring key for scoring the items. Since some of the items were critical incidents, prior to scoring we devised a scheme for awarding points based on the concepts used in the critical incidents described by trainees.

We were also interested in gathering data regarding transfer of training to the job (level 3 data). To this end, a total of 81 training participants and 72 managers from the six organizations were surveyed. Since the organizations used different modules, we created customized questionnaires for each organization based on the modules used by trainees in those organizations. Thus, the number of items on the questionnaires varied by organization. We administered a survey to training participants and their managers both before and after the training. The survey items were rated on a seven-point Likert-type scale and asked participants and their managers to rate the extent to which a particular behavior was used/observed on the job. In addition to establishing

current skill levels, the post training survey also asked trainees and their managers to retrospectively rate trainee skills prior to the training. This provides an additional measure of trainees' skill improvements, by adjusting for greater awareness about the skills covered in training, following the training.

We tabulated the data by organization, since they used different combinations of the training modules.

Level 4 data was gathered by conducting in-depth telephone interviews of a sample consisting of a subset of 16 trainees and 12 of their managers who completed level 3 surveys. We also interviewed 3 training administrators to get an additional perspective. These interviews occurred approximately one month subsequent to the training and were about 45 minutes in length. We first faxed copies of the survey to trainees and their managers, since we wanted them to be able to answer the questions in as detailed a way as possible. Then we conducted telephone interviews referring to the surveys they had received via fax. We asked trainees and their managers to focus on specific instances of how these skills were used and asked them to describe the impact of using such a skill on the work group and ultimately on the organization

Results

In this first phase of the study, we conducted some simple analyses of the data, including mean scores pre and post training with level 2 and level 3 data. Although we conducted t-tests on the data from one of the organizations that had a slightly larger sample relative to the others, we found no significant differences between pre and post scores, even though the actual differences in the ratings were respectable. This is probably an artifact of sample size. Therefore, we decided to gather more data before conducting further analyses due to the small size of the samples from the other organizations. In addition, some qualitative analyses of level 4 data were conducted. Results from this phase of data analysis indicate the following for each level of data:

Trainees' Reactions to the Training (Level 1 Results). Telephone interviews with trainees and their managers indicated that the training was well received by trainees. Both groups felt that the skills learned in training would be useful to them in their work.

Knowledge Gains (Level 2). In general, trainees showed an overall improvement in their knowledge and awareness of the skills covered in the training. However, many trainees did not fully complete their surveys. This may be due to the fact that trainees were asked to complete these level 2 mastery tests as well as level 3 skill transfer questionnaires. Moreover, the mastery tests included critical incident type "essay" questions. Thus, the results indicate that these surveys need to be substantially revised to make them less lengthy and cumbersome.

Table 1. Pre and Post Training Knowledge Gains (Grand Means)

	Pre	Post	Difference
Company 3	1.11	2.18	1.07
Company 4	1.11	2.08	0.97
Company 5	1.09	2.06	0.97
Company 2	1.90	2.53	0.63
Company 1	1.03	1.10	0.07

Skill Transfer (Level 3). Trainees and their managers saw improvements in trainees' skills from both before to after training and retrospectively before to after training. Both groups indicated that trainees practice many of the skills acquired in training to a greater extent than before the training. These ratings were relatively consistent across the various organizations, which indicates that the questionnaires have face validity.

Table 2. Pre and Post Training Skill Transfer (Grand Means) for Self Ratings

	Pre	Post	Difference
Company 1			
Managing Your Priorities	4.26	4.98	0.72
Moving from Conflict to Collaboration	4.53	5.14	0.61
Personal Strategies for Navigating Change	5.08	5.63	0.55
Handling Emotions Under Pressure	4.71	5.22	0.51
Giving and Receiving Constructive Feedback	4.73	5.19	0.46
Company 2			
Managing Your Priorities	4.27	5.31	1.04
Proactive Listening	5.10	5.97	0.87
Giving and Receiving Constructive Feedback	4.71	5.55	0.84
Company 3			
Handling Emotions Under Pressure	4.97	5.47	0.50
Moving from Conflict to Collaboration	5.09	5.58	0.49
Giving and Receiving Constructive Feedback	5.04	5.46	0.42
Company 4			
Moving from Conflict to Collaboration	4.21	5.71	1.50
Influencing for Win-Win Outcomes	4.09	5.56	1.47
Managing Your Priorities	3.99	5.38	1.39
Company 5			
Basic Principles	4.83	5.97	1.14
Influencing for Win-Win Outcomes	4.70	5.84	1.14
Managing Your Priorities	5.19	6.05	0.86
The Leader in Each of Us	5.43	6.13	0.70

Table 3. Pre and Post Training Skill Transfer (Grand Means) as Rated by Managers

	Pre	Post	Difference
Company 1			
Managing Your Priorities	4.64	5.50	0.86
Giving and Receiving Constructive Feedback	5.28	5.57	0.29
Handling Emotions Under Pressure	5.42	5.54	0.12
Moving from Conflict to Collaboration	5.33	5.42	0.09
Personal Strategies for Navigating Change	5.42	5.50	0.08
Company 2			
Managing Your Priorities	4.44	5.09	0.65
Company 3			
Handling Emotions Under Pressure	3.72	4.44	0.71
Moving from Conflict to Collaboration	3.84	4.16	0.32
Giving and Receiving Constructive Feedback	4.02	4.14	0.12
Company 4			

	Pre	Post	Difference
Influencing for Win-Win Outcomes	4.23	5.43	1.20
Moving from Conflict to Collaboration	4.34	5.36	1.02
Managing Your Priorities	3.95	4.70	0.75
Company 5			
Basic Principles	4.17	5.67	1.50
Influencing for Win-Win Outcomes	4.27	5.73	1.46
Managing Your Priorities	4.72	5.71	0.99
The Leader in Each of Us	5.10	5.80	0.70

Bottom-line Impact on the Workgroup and the Organization (Level 4). In-depth interviews indicated that trainees and their managers had a clear view of how skill improvements were tied to the organization's bottom-line. The following examples of anecdotal data indicate that managers and trainees see bottom-line impacts on the organization from increased use of skills on the job.

Managers "... an outcome is that when people call, it doesn't become a bigger problem it doesn't get exacerbated or extended, she generally brings closure to most issues. The benefit to the district is that it saves a lot of people a lot of time. I rarely have to deal with these issues because she does it for me."

"...better production, less company loss monetarily, because when accounts are worked properly, we save money. I have seen where it has enabled us to work out a plan with a customer instead of foreclosing...you can see a decrease in the delinquency and a smaller inventory in foreclosure properties. That's hardcore evidence right there in black and white..."

Trainees "...I have a whole file of concerns that have been resolved. We have 25 schools in this area and we don't have any unresolved concerns at this point."

"...you cut out the complaints and all that...We just, in the past two audits that we've had have been excellent whereas before, they were marginal. You could just see the difference. Coming from marginal to excellent-that's a big accomplishment."

Both groups also indicated that they would be able to provide hard data in this regard. The next phase of this evaluation will gather and examine information such as phone logs and work logs to determine numbers of hours in productivity gains, in order to quantify this data to some degree.

Discussion

While the results of the evaluation were positive for the most part, some interesting implications emerged for organizations considering training solutions:

Training is considered effective when a clear need for the skills taught in training exists. This was apparent in the following example. When we asked a manager of an employee in a Health Maintenance Organization who attended training related to managing priorities whether she saw improved skill use, she indicated that "...from knowing this person, she's already pretty skilled at organizing her priorities, but if there is a difference it's going to be pretty slight, because she is already probably top of the scale in terms of knowing how to organize herself..." Another manager in the same organization indicated that the unit related to managing priorities was the most useful, since self management was a key skill that her customer service representatives needed. In contrast, the manager felt that the training that focused on proactive listening was the least useful to her group since the group, because of the nature of their work, were already highly skilled listeners. Therefore, the manager indicated that if there were improvements in listening skills, they would not be discernible to her. These examples illustrate that in order to maximize training dollars in an organization, it is important to determine specific needs prior to the training.

Organizational support is a critical element in ensuring the success of a training program. The following example indicates that without management support, the trainee is hamstrung in their efforts to practice the skill on the job. An example emerged in our interviews with a manager

at a hospital. The manager indicated that she would have a difficult time assessing the employee's performance, since "the person we are evaluating is not a supervisor...I don't necessarily see leadership qualities in this person." The employee, however, felt that the training had helped to improve her skill level.

The examples serve to illustrate some of the pitfalls inherent in an evaluation effort, unless all success factors are considered. To begin with, training should not necessarily be seen as a panacea for all ills, without other issues being considered. If these other factors are not considered, the training program being evaluated can become the scapegoat given poor results from an evaluation. In many cases, the program may be valuable, but misapplied. In such situations, the danger is, of course, that the program or even all training may be labeled as ineffective. This is why Brinkerhoff (1994) insists on organizational context as a critical element in a productivity improvement initiative and cautions that training is merely a slice of that context.

Finally, it is important to note that this evaluation effort deviated from the Kirkpatrick typology in that the results are being utilized in a formative fashion to modify both the instruments and the leadership training program.

Contribution of this Research to New Knowledge in HRD

This study builds upon the existing body of evaluation research and reinforces the notion that evaluation cannot occur in a vacuum; divorced from the organizational and job context (Brinkerhoff, 1994). The research indicates that context is an important element of training effectiveness—i.e., training to skills that are immediately usable in a job context allows the training to become a part of a worker's skill repertoire. Thus, this research points to the need for some assessment of need at the individual level as well as a need for an assessment of organizational support as an integral part of an evaluation and needs assessment effort. If an OD intervention is well structured from the start, the results will speak for themselves. This effectively should eliminate the need to justify training through resource and cost intensive evaluations. In effect, training and organizational development professionals should become "performance consultants" (Robinson, 1995) and determine ways in which such interventions can be proactively linked to the bottom-line. Training should become one more way of addressing specific productivity issues rather than randomly offered as professional development, with no links made to organizational and workgroup goals.

The study also provides an example of a blended approach to gathering evaluation data. While quantitative data analysis is critical, qualitative data can be rich in detail and often provide as much information as purely quantitative information gathered via a survey. Many of the client organizations who received some of this preliminary data found the information very informative and actionable.

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Development and Evaluation of the Critical Outcome Technique (COT)

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The COT represents an important development in post-hoc program evaluation. Until now, the primary avenue of being able to predictably demonstrate the results of HRD has been through a systematic development process including up-front performance analysis and systematic evaluation.. The COT, metaphorically similar to the famed Critical Incident Technique, functions within the milieu of an ongoing organization while yielding powerful critical outcome data that are verifiable and quantifiable.

The concept of evaluating human resource development (HRD) programs is encountered repeatedly in the literature on organizations; however, widespread disagreement exists with respect to the efficacy of practical program evaluation. While the importance of evaluating HRD programs has been emphasized by scholars and practitioners (Goldstein, 1986; Kirkpatrick, 1994; Nadler & Nadler, 1989) many lament the overwhelming lack of evaluation which actually occurs within organizations. Indeed, many assert that even when evaluations are conducted, they are conducted in a manner which fails to demonstrate results which translate to the bottom-line (Swanson & Gradous, 1988). Demonstrating bottom-line impact is the Gordian knot of evaluation; by not demonstrating the effectiveness of programs those responsible for the creation and/or implementation of HRD programs risk not only their credibility, but their probability of receiving organizational resources (Fitz-Enz, 1994; Kirkpatrick, 1994; Kusy, 1988; Phillips, 1996).

A central theme in discussions of program evaluation is that demonstrating results, or benefits, of development programs is formidable due to difficulties associated with establishing causality. To the end of demonstrating the instrumental value of development programs, techniques rooted in basic research methodologies have been regularly proposed (Grove & Ostroff, 1990; Arvey & Cole, 1989; Goldstein, 1986). Such approaches rely on control appropriate for experimental and quasi-experimental research, but, it is often argued that their practical utility is questionable due to a bevy of constraints which ultimately draw their validity into question.

In response to methodological arguments, Cronbach (1982), asserts that evaluation is an art, and that every evaluation should represent an idiosyncratic effort to meet the needs of program stakeholders. Thus, while scientific, or experimentally designed, evaluation may strive to meet the research standards of the investigators peers, program evaluations need to meet the interests of the stakeholders, to yield maximally useful information for decision makers.

Unfortunately, in the eyes of many HRD professionals, many decisions about investments in development programs (within and between organizational departments) revolve about the issue of resource allocation. Consequently, most models of program evaluation have a financial or results analysis component. Indeed, it has been demonstrated that evaluation data regarding the effectiveness of programs, specifically bottom line results, is crucial to garnering support for the HRD function from non-HRD managers (Carnevale & Schulz, 1990; Kusy, 1988).

Certainly most scholars and practitioners would agree that program results influence and are influenced by elements of a larger organizational system. The preponderance of literature on the behavior of systems in recent years is evidence of this. For this reason, many scholars and practitioners have advocated that HRD interventions be thought of in terms of improving performance in their broader systemic context (Brinkerhoff, 1997; Rummler & Brache, 1995; Swanson, 1994).

These scholars eschew the notion that training is the sine qua non response to many perceived performance deficiencies. In order to address such deficiencies, they advocate often extensive programs of analysis to understand and identify performance improvement requirements. For instance, Swanson (1994) cites the analysis phase as the most crucial part of the performance improvement process. Evaluation, in this model, is based directly on performance objectives determined in the analysis. The performance requirements are the basis for both performance objectives of the intervention and the follow-up evaluation system assessing their attainment. This process, while valuable to the organization in many ways, typically requires a significant

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investment in both time and financial resources.

In contrast to models of evaluation which rely on front-end analysis are models which assume that HRD programs (typically training programs) are instrumental in producing a desired end state. The objectives they purport to evaluate are often based on general assumptions about needs or perceived needs.

In other cases, needs are determined on a case-by-case basis. For example, many companies offer regularly scheduled development programs that employees can sign-up for on an individual need basis. For example, many companies offer general-- but high need-- computer training programs into which employees can self select.

Evaluation of such programs, since they are not linked to predetermined performance requirements for specific groups or individuals, do not usually have rigorous assessments of the organizational usefulness of the program. If they are evaluated at all, it is typically at the level of participant reactions. Thus, with all the discussion about performance evaluation, there is very little evaluation of performance outcomes that actually takes place (Swanson, 1989).

Research Problem and Objectives

This study is a direct attempt at addressing the problem of meeting the profession's need for a valid method for determining and valuing critical outcomes resulting from HRD interventions not based on rigorous up-front performance analysis. Three research questions were posed as a means of addressing the problem:

1. Can a Critical Outcome Technique (COT) be developed that would logically elucidate the critical outcomes resulting from any HRD intervention?
2. Will the COT produce identifiable critical outcomes?
3. Will the COT work in an actual organizational setting?

Methodology

The COT development question, Research Question #1, was addressed through literature, logic, systems thinking, and expert review at various stages of development. The evaluation of the COT questions, Research Questions 2 and 3, were addressed through the case study application of the COT in a profit-making organization. The first case study solicited COT critical outcome definition data from 13 independent and varied HRD interventions throughout a multinational corporation. The second application was an in-depth application and assessment of HRD program in another corporation using the COT. Attention was paid to verifying the reliability and validity of the data along with the workability of the COT in a context of an intervention that had a limited up-front analysis.

Research Findings: Question #1

Can a Critical Outcome Technique (COT) be developed that would logically elucidate the critical outcomes resulting from any HRD intervention? A review of the literature used as the basis of developing the COT illustrates the following problems in the area of HRD program evaluation:

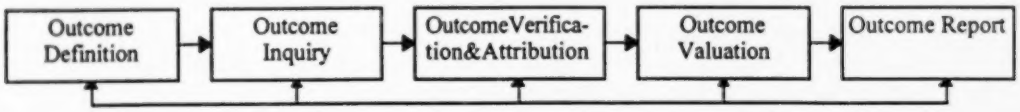
1. Evaluation of the results of training often requires complex designs which are very difficult to implement in practice;
2. To evaluate programs in the context in of the larger system in which they are designed to operate, it is optimal to use techniques which rely on rigorous front-end analyses which require larger investments of resources than most organizations can practically allocate;
3. The theoretical models the profession currently uses to guide evaluation lack technique necessary to evaluate outcomes in an efficient fashion;
4. Additionally, almost all such models rely on the assumption that a training program was instrumental in achieving a given objective or set of objectives, an assumption which in the absence of an analysis of performance requirements is tenuous at best.

These themes point to the desirability to have a procedure for demonstrating value-added *outcomes* of HRD programs not requiring front-end analysis. Such a technique should be relatively easy to use, yet able to generate valid and reliable data about the actual outcomes of a program. Additionally, such a procedure should be flexible enough to be used *after* a program has

been completed in the absence of front-end analysis data regarding program objectives.

Presentation of the COT Model. A model of the Critical Outcome Technique (COT) appears in Figure 1.

Figure 1. Model of the Critical Outcome Technique



Outcome Definition. The primary question of concern in this phase is, "What were the intended critical outcomes of this program?" Individuals associated with the approval and development of the program are utilized as the data source as they are most likely to be aware of the intended objectives of the program.

Follow-up questions are utilized to operationalize the definitions of outcomes. It is important to distinguish between outcome statements and activity statements in the evaluation of programs. Activities statements contain non-specific language. For example, "The objective of this program was to build partnerships between departments." In contrast, outcome statements are operationalized; such statements can answer the question, "How will you know when the outcome has been achieved." In the previous example, an operationalized outcome statement would be something like, "The intended outcome of this program was an increase in sales through improved communication. Because operationalization of intended outcomes occurs in the Outcome Definition phase, metrics, or ways of assessing if the outcome occurred, must also be defined, because it is by them that the program's success will be assessed.

Outcome Inquiry. The main question in this phase is, "What were the actual outcomes of the program?" Actual outcomes of the program may be intended (as defined by program sponsors) or unintended. The data collection source in this phase is program participants. These individuals have the most knowledge about how their behavior, and hence outcomes, were impacted by a program. The preferred data collection technique in this instance is an interview or focus group. However, if the outcome metric is clearly defined, it may be adequate to simply send out a questionnaire to gather data.

Outcome Verification. This phase addresses the questions, "Did the outcome(s) really occur as reported by the participants?" and "To what degree would the outcome(s) have occurred in the absence of the program?" The first question is best answered by program stakeholders. For instance, in the case of a sales communication training program, a sales manager might be asked to verify that a sale actually occurred as reported by a program participant.

Regarding the attributability of the outcome to the program, we encounter all kinds of methodological difficulties which are, as indicated above, best addressed by rigorous basic research methodologies. In response to such concerns, we must remember the arguments put forth by Cronbach (1982) and Patton (1987) that program evaluation represents not a rigid representation of the "truth." More appropriately, program evaluation represents an artful effort to produce information upon which decisions can be made. In this sense, estimates of the attributability of an outcome to a program should be reasonably accurate and not 'right on the money.' Astute program evaluators will apprise themselves of phenomena such as primacy and recency effects, halo effects, and other behavioral patterns which may affect the accuracy of an estimate. In order to ensure such estimates are closer to being accurate representations, it is recommended that more than one data source be consulted. It is also recommended that such sources be investigated independently of one another, to avoid any inflation or deflation of estimates due to social desirability or other factors which influence individual cognition in group settings.

Outcome Valuation. In this phase, the primary question of interest is, "How much is this outcome worth?" Admittedly, this is a difficult judgment to make; however, as in the case of attributability, more estimates of the value of an outcome are better than fewer. In some instances, a given outcome metric may not have an assignable financial value. In such cases, the outcome must be valued in some other way. For instance, if the outcome of a program was a reduction in the number of customer complaints about a product, then the approximate number of complaints reduced should be noted. This way, the outcome still has value, even though its financial implications might be difficult to ascertain.

Outcome Report. The final phase of the COT is the production of an *Outcome Report*. Such a report should, in the spirit of Cronbach (1982), Patton (1987), and Brinkerhoff (1995), represent an attempt to satisfy the needs of the customer of the evaluation. For instance, if the evaluation is intended for a general audience, it is probably best not to include elaborate descriptions of reported outcomes. With every outcome report, data should be accessible, to back up the report if necessary. The model report will be developed in a later phase as this technique is developed further.

Research Findings: Question #2

Will the COT produce definable critical outcomes? The purposes of the first case study were to: (1) to determine the overall status of selected HRD programs in the corporation through an extensive program audit and (2) to specifically determine if the COT is capable of determining definable critical outcomes, post hoc.

HRD Program Status. Each program submission was compared against a model of "ideal practice" in the form of the Training for Performance System: Field Handbook (Swanson, 1996). It is important to note that most auditing practices ask the question, "Did they do what they said they were going to do?" This case study audit asked much more rigorous question: "How does what they did stand up to ideal best practices?" Given this second question, the best practices found in one organization may not be considered best practices when compared to the ideal or the larger pool of practice.

HRD efforts take place in thirteen (13) formally established HRD divisional work groups throughout the corporation. Each HRD function within each of the 13 work groups was asked by corporate HRD to identify the single program that was most costly and which would be continued in 1997. A copy of the full 80 page report is available (Swanson & Swanson, 1997). A summary of the assessment is contained in Figure 2: Evaluation of "Training Practices" compared to "Ideal Practices." The following results are based upon the materials submitted to the auditors. The working assumption was that all available documentation had been provided to the researchers. Thus, the working assumption was that if no documentation was submitted for a particular HRD phase-- analyze, design, develop, implement, and evaluate-- then no activity took place within that phase.

The profile of Figure 2 confirms most assumptions about HRD practices: (1) Programs vary in quality from one to another and (2) the analysis and evaluation phases are the weakest areas of practice in the profession compared to design, development, and implementation.

Outcome Definitions. The description of each the 13 programs and the stated and/or implied objections of each were fundamental in deriving the outcome definition for each. The outcome definition is the basis for the execution of the COT. The program description, objectives, and outcome definition (critical outcome inquiry question) for each of the 13 programs follow:

(1) ***Essentials of Management.***: Three day supervisor training dealing heavily with interpersonal skills (e.g., communicating expectations, coaching, giving effective feedback, managing performance, managing conflict) for managers with 6-18 months' experience.

- Stated Purpose: To enhance the effectiveness of supervisors and managers who are relatively new to their position or who have received little formal training as managers, with a focus on people management skills.
- Outcome Definition: Has a critical outcome (good or bad)-- such as complaints and/or filed grievances--occurred in your work setting as a result of your participation in the Management Essentials program?

(2) ***Overview of Insurance Business***: A three-phase program offered once a year consisting of a one-day kickoff Session, two months of Advance Assignments carried out as a team, and a final three-day seminar of team report-outs, lectures by senior manager subject matter experts on eight topics, and discussions.

- Stated Purpose: To provide a forum for high-potential people to learn from senior management and from one another about the principal external and internal drivers that impact the business of a shareholder-owned, multiple-line insurance company. To explore how the corporation competes for both customers and capital to create long-term shareholder value.

- Outcome Definition: Has a critical outcome (good or bad)-- such as new staregic initiatives-- occurred in your work setting as a result of your participaction in the Overview of Insurance Business program?

(3) ***Applying Underwriting Skills: Computer-based Program***

- Description: A CD-ROM computer-based training program designed for both middle market and small case salespeople with less than one year's experience in the corporation. The module contains basic-to- intermediate level underwriting information.
- Stated Purpose: To create an understanding of the underwriting process for a profitable sales career as well as the salesperson's role within this process.
- Outcome Definition: Has a critical outcome (good or bad)-- such as sales or proposal accuracy-- occurred in your work setting as a result of your participaction in the Applying Underwriting Skills program?

Figure 2: Evaluation of "Training Practices" compared to "Ideal Practices"

SUMMARY	ANALYZE		DESIGN		DEVELOP		IMPLEMENT		EVALUATE		
	Perf.-Exper.		Prog.-Les.		Mat.-Pilot		Logis.-Sched.		PLS-Report		
Rating	1.1	1.2	2.1	2.2	3.1	3.2	4.1	4.2	5.1	5.2	
PROGRAM AREA:											
• Essentials of Mgmt.	L	M	H	H	H	H	H	H	M	H	H
• Insurance Business	L	L	M	L	M	L	L	M	L	L	L
•Underwriting Skills	H	H	H	H	H	H	H	H	M	L	H
•Essent. of Leadership	M	M	H	M	H	L	M	H	M	L	M
•Dale Carnegie Course	L	L	L	L	M	L	L	M	L	L	L
•Diversity Awareness	L	M	H	H	M	H	H	H	M	H	H
•Non-Financial Mgers	L	L	L	L	H	L	L	M	M	L	L
•Consultative Selling	L	M	M	L	M	H	L	H	M	L	M
•Marketing Leadership	L	L	L	L	M	L	L	M	L	L	L
•Consultative Selling	M	M	M	L	L	L	L	M	L	L	L
•Project Management	L	H	H	M	L	M	H	H	M	L	M
•Sales Training Forum	L	L	L	M	L	L	H	H	L	L	L
•Action Learning	H	H	H	H	M	H	H	H	M	M	H
SUMMARY Rating	L	M	M	M	M	M	M	M	L	L	

H = high; consistent evidence/good practice; M = Medium; some evidence/marginal practice; L = low; no evidence/poor practice

(4) ***Essentials of Leadership***: A three-day program consolidating three former Essentials of Leadership programs into one. The program is an extension of the Basics of Leadership Development (BOLD) initiative and is geared to experienced managers.

- Implied Purpose: To provide knowledge and skills training for experienced managers in the areas of performance management, communication, and coaching.
- Outcome Definition: Has a critical outcome (good or bad)-- department effectiveness-- occurred in your work setting as a result of your participaction in the Essentials of Leadership program?

(5) ***The Dale Carnegie Course***: An off-the-shelf motivational course in personal development through assigned readings, class exercises, and speaking assignments.

- Implied Purpose: To develop or improve personal traits and skills including performance and effectiveness, leadership, memory and powers of concentration, courage and confidence and effective communication in addition to learning how to control stress and excessive worry.
- Outcome Definition: Has a critical outcome (good or bad)-- personal performance ratings-- occurred in your work setting as a result of your participaction in the Dale Carnegie Course?

(6) ***Diversity Awareness***: An interactive 1-1/2 day non-confrontational and inclusive workshop consisting of pre-reading assignments, small group work, videos, and large group discussions, activities and interactions.

- Stated Purpose: To heighten selected investment management and investment law employees' awareness of diversity and diversity issues.
- Outcome Definition: Has a critical outcome (good or bad)-- improved work-group effectiveness or a reduction of complaints and/or filed grievances occurred in your work setting as a result of your participaction in the Diversity Awareness program?

(7) ***Finance for Non-Financial Professionals***: "Enjoyable" approach to learning about finance using a manual having cartoon figures and clear, easy to understand examples, lectures and activities to practice and test what's been learned throughout the course.

- Stated Purpose: To educate attorneys and paralegals on how the corporation makes money: the fundamentals of finance, accounting principles, and business units as capital.
- Outcome Definition: Has a critical outcome (good or bad)-- legal desisions impacting finacial outcomes-- occurred in your work setting as a result of your participaction in the Finance for Non-Financial Professionals program?

(8) ***Consultative Selling Skills***: An interactive two-day instructor-led course covering a 7 step "consultative" sales process for all levels of production underwriters who work with field agents (producers). It consists of numerous activities, discussions, and exercises including customization for in the form of role playing, videotaping and one-on-one feedback.

- Implied Purpose: To ensure that field staff have the skill sets that will make them most helpful to their agents and thereby help achieve the profitable growth objective.
- Outcome Definition: Has a critical outcome (good or bad)-- such as new sales or add-on sales-- occurred in your work setting as a result of your participaction in the Consultative Selling Skills program?

(9) ***Marketing Leadership II***: A three day instructor-led course dealing primarily with marketing strategy via lecture, readings, and work group exercises using a computer-based marketing simulation program.

- Implied Purpose: To build marketing strategy knowledge and skills for individuals who deal directly with customers and have completed the basic marketing leadership seminar.
- Outcome Definition: Has a critical outcome (good or bad)-- such as new marketing initiatives-- occurred in your work setting as a result of your participaction in the Marketing Leadership program?

(10) ***Consultative Selling***: An interactive two-day instructor-led course covering a 7 step "consultative" sales process for all levels of production underwriters who work with field agents (producers). It consists of numerous activities, discussions, and exercises including customization in the form of role playing, videotaping and one-on-one feedback.

- Implied Purpose: For field-based sales associates and key people in the field client services organization and in the home office who support the consultative sales process (e.g., National Accounts Management and Transition Management).
- Outcome Definition: Has a critical outcome (good or bad)-- such as new sales or add-on sales-- occurred in your work setting as a result of your participaction in the Consultative Selling Skills program?

(11) ***Project Management Certificate Program***: The program is composed of four individual curriculums which support the overall objective of professionalizing the role of project managers in the corporation. Curricula includes: a Project Management Certificate Program, a Coaching Certificate Program, a Management/Customer Workshop, and Project: Quickstarts.

- Stated Purpose: To improve corporate staff project management capabilities through training, on-the-job coaching, and exposure to (external) PM experts and ideas. Specifically, to provide specific training in the nine (9) major areas of project management (as identified in Project Management Body of Knowledge). The training focuses on the "what" (process,etc.).
- Outcomes Definition: Has a critical outcome (good or bad)-- project cost overruns and meeting project deadlines-- occurred in your work setting as a result of your participaction in the Project Mgt. Certificate?

(12) ***Sales Training Forum***: A two-week program offered 1-2 times a year primarily for new sales reps. Specific content of each offering is determined by needs input from participants, sales and business unit managers.

- Implied Purpose: To expose participants to consultative sales training, to an underwriter's job

in the home office, information regarding products, new organization strategies, how customer problems are to be addressed, etc.

- Outcome Definition: Has a critical outcome (good or bad)-- time to meet minimum performance standards-- occurred in your work setting as a result of your participaction in the Sales Training Forum?

(13) ***Action Learning Program***: A leadership development program for high potential cross cultural managers which utilizes an action learning approach (learning while solving a pressing business issue), thus focusing on both people *and* business development.

- Stated Purpose(s): To strengthen strategic and tactical abilities in building and managing an insurance business; To become familiar with the corporation's international leadership model, assess own strengths and development needs against model, and build/reinforce personal development objectives/plans; To increase skills in leadership, project management, and working in borderless teams; To understand the interrelationship of issues involving teams, interpersonal skills, peer influence and group dynamics, and the importance of these issues to leadership capability; To review the current international business strategy and, if appropriate, develop a new and comprehensive strategy to ensure continued growth and profitability; To establish a network of global contacts for use in the future.
- Outcome Definition: Has a critical outcome (good or bad)-- business effectivesness-- occurred in your work setting as a result of your participaction in the Action Learning program?

Research Findings: Question #3

Will the COT work in an actual organizational setting? The purpose of the second case study was an in-depth application and assessment of HRD program in another corporate HRD program using the COT.

Critical outcomes can be thought of as (a) business results at the organizational, process or individual levels and/or (b) financial results or benefits in terms of money or monetary ratios. Business results that are monatized become financial results. For example, the business result of increasing market share by 5% could be converted into numbers of sales times the financial value of each sale. Another example would be to increase the hourly production rate of injection molded items (that meet quality standard) from 30 to 35. In each of these examples the business results can be monitized and then expressed in terms of financial results.

This case study involved the post hoc evaluation of critical outcomes from a communication development program for sales personnel in a major insurance company. The sales force sells insurance plans to employers. The performance improvement intervention in this case included training that was provided to several hundred sales personnel through 24 program offerings at various sites throughout the nation over a six month period.

The company had an ongoing commitment to generic communication training for their sales force. Given this base of support, the manager conducted a hurried analysis that confirmed the loss of business as a result of inadequate communication skills and a more precise profile of the specific communication expertise required. Supervisors of the sales personnel were also trained in the communication skills, were recruited to assist in the role-playing assessments of expertise during training, and in conducting follow-up evaluations and encouragement back on the job.

Utilizing the COT, it was determined that the critical outcome was *increased sales*. The company has a system for tracking sales by salesperson, office, region, and product. They also have standard gross and net financial measures per sale. The connection between available financial measures and the specific of this case were not known at the onset and became clear through the application of the evaluation model.

The decision was to identify sales that were attributed to the the program by participants and to do this 60 days following the effort. Sales people and their supervisors were asked to report on any sales, or portion of sales, attributable to the communication program. The position taken was these estimates would be underestimates and that the specific sale had to be recorded if there were any questions about the data base. Thus, these were not perceptions of performance. Rather, they were verifiable sales cautiously attributed to the intervention. The total number of attributed sales were multiplied by the net worth of an average sale. A meeting with the comptroller yielded this figure following a zigzag conversation about available financial data. The direct cost of the HRD intervention was compared to the net profit from the reported sales attributable to Communication Development program to determine the ROI.

It was concluded that the COT functioned effectively and efficiently in this case. The internal challenges from corporate decision makers come in two areas: (1) the questioning of the financial worth of the selected critical outcome and (2) the questioning of the validity of the core

critical outcome data. Both were sustained. The financial worth of the critical outcome was established by the comptroller. Her credibility and/or lack of bias for HRD validated the COT effort. In terms of the validity of the sales data, each sale was listed (verifiable) and judged by both the participant and participants manager to be a result of the HRD intervention (attributatble).

Conclusions

Findings from this study provide *affirmative support* to the three research questions:

1. Will a Critical Outcome Technique (COT) be developed that would logically elucidate the critical outcomes resulting from any HRD intervention?
2. Will the COT produce identifiable critical outcomes?
3. Will the COT work in an actual organizational setting?

The COT represents an important development in post-hoc program evaluation. Until now, the primary avenue of being able to predictably demonstrate the results of HRD has been through a systematic development process including up-front performance analysis and systematic evaluation. The COT, metaphorically similar to the famed Critical Incident Technique, functions within the milieu of an ongoing organization while yielding powerful critical outcome data that are verifiable and quantifiable.

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Monitoring the Effectiveness of a Performance-Focused Human Resource Development Workshop at Andersen Consulting Three Months After the Workshop

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This study focused on measuring the effectiveness of an Integrative Learning workshop provided to 506 human resource professionals in Andersen Consulting's North American practice area. The Performance Change Curve was introduced as a framework for self-report data regarding targeted performance change three months after the workshop. Implications are drawn for future performance-focused education efforts at Andersen Consulting.
Keywords: Performance-Focused Learning, Performance Change, Integrative Learning, Reflective Learning, Learning Theory, Workplace Learning, Research Results

Andersen Consulting (AC) has pioneered the development and use of performance-focused human resource development programs with its global consulting workforce since early 1993 (Nowakowski, 1994; Montgomery, 1996a). In Fiscal Year 1996 (September, 1995 through August, 1996), Andersen Consulting Education (ACE), Andersen Consulting's internally focused professional development organization, invested more than $17,100,000 in development and delivery of performance-focused human resource development programs for AC's global workforce of 41,000 consultants (Montgomery, 1996b)[1] Measuring the performance return on this investment is recognized as a challenge and a growing business imperative. Research data documenting the effectiveness of these programs has not kept pace with the demand for and development of these programs. In early 1996 AC began collecting feedback survey data from participants in these programs using electronic media. This use of technology has made gathering research data more cost effective and practical.

This study focused on the evaluation of the effectiveness of one 8-hour, Andersen Consulting performance-focused workshop, the "Applied CDM Learning Day," offered to 506 human resource (HR) professionals in AC's North American practice area between March and September, 1996.

Background

In 1995, in order to stay ahead of the growing demand for deeply skilled consulting professionals to meet the needs of its global clients, Andersen Consulting (AC) introduced a competency-based framework for recruiting, staffing, and developing its global workforce of consulting professionals (Montgomery, 1996b). The *Career Development Model* (CDM) (Montgomery, 1996d) was first introduced in AC's North American practice area in a series of information-focused sessions provided to human resource professionals supporting this workforce. It soon became clear that these professionals needed additional support to learn to work with this model in their daily routines. To meet these needs, a performance-focused workshop was developed in December, 1995, using a systems approach to Integrative Learning design (Montgomery, 1996c). The

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[1] This only represents a portion of the financial investment made by Andersen Consulting in developing its global consultants. AC's gross income for the Fiscal Year was in excess of $4 billion and 6.5% was invested in the continuing development of its workforce (Montgomery, 1996b).

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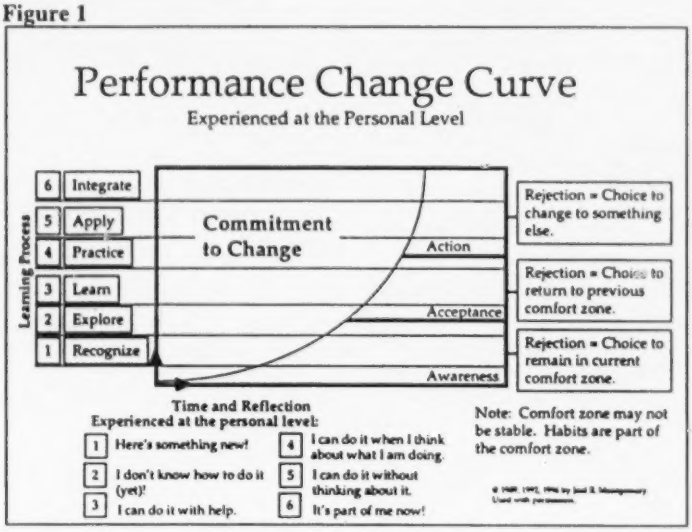
conceptual design for this workshop was tested in February, 1996, and the workshop was piloted in March with very minor changes. . The design for this workshop was introduced at the 1996 Conference of the Academy of Human Resource Development (Montgomery,1996d).

After completion of the workshop, learners were expected to have moved up the Performance Change Curve (Montgomery, 1996a) (see Figure 1) in four areas:

1) Be more proficient in using the Career Development Model in making HR decisions regarding staffing, recruiting, and training.
2) Work more effectively in supporting other HR functional specialties.
3) Regularly think about what they are doing on the job and proactively implement ideas for continuous improvement in the way they work.
4) Proactively share learning and improvement ideas with others to help in the development and growth of AC's HR organization.

Figure 1


Performance Change Curve
Experienced at the Personal Level
Learning Process
6 Integrate
5 Apply
4 Practice
3 Learn
2 Explore
1 Recognize
Commitment to Change
Action
Acceptance
Awareness
Rejection = Choice to change to something else.
Rejection = Choice to return to previous comfort zone.
Rejection = Choice to remain in current comfort zone.
Time and Reflection
Experienced at the personal level:
1 Here's something new!
2 I don't know how to do it (yet)!
3 I can do it with help.
4 I can do it when I think about what I am doing.
5 I can do it without thinking about it.
6 It's part of me now!
Note: Comfort zone may not be stable. Habits are part of the comfort zone.

Research Questions:

1. Can participants use the Performance Change Curve (see Figure 1) as a common framework by which to measure targeted performance change?
2. Will the data regarding growth in targeted performance immediately after the workshop be consistent with the results of the "7-days after" survey?
3. How much growth on the Performance Change Curve did learners experience over the three months following the workshop?
4. Is there a correlation between frequency of personal use of the CDM and learning level on the Performance Change Curve in CDM-related targeted performance over the three months following the workshop?
5. What support activities have the learners experienced with regard to working with the CDM in the three months following the workshop?

Methodology:

The "Applied CDM Learning Day" was conducted in 21 sessions at cities throughout North America during the period March through September, 1996. The number of participants in each

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session ranged from 11 to 46. Each of the 506 participants[2] was sent an electronic survey seven days after the workshop and three months after the workshop. 221 participants (44%) responded to the "7-days after" survey and 101 participants (20%) responded to the "3-months after" survey.[3] The results of the "7-days after" survey are presented in a separate paper (Montgomery, 1996e).

Only one version of the "3-months after" survey was used. This survey asked learners to place themselves on the Performance Change Curve for each of the four targeted performance areas for three time periods: Before the workshop; immediately following the workshop; and three months after the workshop. Learners were also asked how frequently they used the CDM and how frequently their internal customers used the CDM. The survey then collected frequency data regarding use or involvement in specific activities regarding support for their own learning, organizational support for learning, and knowledge transfer to internal customers.

Survey Composition The "3-months after" survey contained 14 questions divided into three sections. Questions 1 through 4 captured demographic information. Questions 5 through 9 captured information and comments regarding application and use of Andersen Consulting's Career Development Model. Questions 10 through 14 captured self-report data regarding growth on the *Performance Change Curve* for each of four targeted performance outcomes. For all questions other than typing a response, *keywords* were identified beside *radio-buttons*. To select a response, the participant would point over the button and "click" the computer's left "mouse" button. The choices were all made by keyword rather than by number. The Lotus Notes mail-in database was programmed to convert the selections to numerical responses. Data collected in the mail-in database was displayed in "views" matching the questions on the survey. Data displayed in these "views" was then exported into a Microsoft Excel spreadsheet where data analysis was conducted.

Results and Analysis

Targeted Performance

1. I have become more proficient in using the Career Development Model (CDM) in making Human Resource (HR) decisions regarding staffing, recruiting, and training.
2. I have increased my ability to work effectively in supporting other HR functional specialties.
3. I regularly think about what I am doing on the job and proactively implement ideas for continuous improvement in the way I work.
4. I am proactively sharing learning and improvement ideas with others to help in the development and growth of our HR organization.

Survey Questions Focused on Targeted Performance Change

The summary question was: How would you assess your growth in the following areas?

Possible Responses:

- Apply/Do it without thinking about it (5)
- Practice/Do it when I think about it (4)
- Learn/Do it with help (3)
- Explore/Don't know how to do it—yet! (2)
- Recognize/Here's something new! (1)
- Unaware/Blank/Zero Level (0) created by three respondents.

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[2] While total of 506 human resource professionals participated in the workshop. 92 participants participated in workshops conducted after the cut-off date for the "3-months after" surveys used in this study.

[3] For the purposes of the tables in the Results and Analysis section of this paper, the numbers used represent both the actual number of respondents and the percentage of respondents.

Table 1: Targeted Performance Before the Workshop

Level on Change Curve	Performance 1	Performance 2	Performance 3	Performance 4
Apply = 5	8	10	23	21
Practice = 4	28	24	39	35
Learn = 3	21	24	15	23
Explore = 2	28	22	15	10
Recognize = 1	15	16	8	12
Unaware = 0	1	3	0	0
Number of Responses	101	99	100	101
Average Score	2.83	2.81	3.54	3.43

Table 2: Targeted Performance Immediately After Workshop

Level on Change Curve	Performance 1	Performance 2	Performance 3	Performance 4
Apply = 5	13	17	33	32
Practice = 4	40	36	42	34
Learn = 3	30	29	15	22
Explore = 2	16	15	9	8
Recognize = 1	2	2	1	4
Unaware = 0	0	0	0	0
Number of Responses	101	99	100	100
Average Score	3.46	3.52	3.97	3.82

Table 3: Targeted Performance 3 Months After Workshop

Level on Change Curve	Performance 1	Performance 2	Performance 3	Performance 4
Apply = 5	33	29	43	39
Practice = 4	49	44	45	41
Learn = 3	10	20	7	14
Explore = 2	6	4	5	5
Recognize = 1	2	2	0	1
Unaware = 0	0	0	0	0
Number of Responses	101	99	100	100
Average Score	4.05	3.95	4.26	4.12

Table 4: Reported Growth in Targeted Performance Immediately After Workshop

Growth on Change Curve	Performance 1	Performance 2	Performance 3	Performance 4
5 levels up		1		
3 levels up		1		1
2 levels up	10	7	6	4
1 level up	48	50	31	29
0 growth	38	39	63	65
1 level down	5			
2 levels down		1		
3 levels down				1
Number of Responses	101	99	100	100
Average Growth	0.62	0.71	0.43	0.37

Table 5: Reported Growth in Targeted Performance in the 3 months following Workshop

Growth on Change Curve	Performance 1	Performance 2	Performance 3	Performance 4
3 levels up				1
2 levels up	4	4	1	2
1 level up	52	37	28	24
0 growth	44	56	70	72
1 level down	2	2	1	1
Number of Responses	100	99	100	100
Average Growth	0.58	0.43	0.29	0.3

Survey Questions Focused on Use of the Career Development Model (CDM)

A. How often do you personally work with the CDM in your daily Human Resource (HR) activities? (Example: How often do you bring up CDM terms or concepts in your phone calls with customers?)

B. How often are your Operating Group customers demonstrating understanding of the CDM in HR-related conversations? (Example: Partners asking you about staffing by skill track, skill domain, and proficiency levels.)

Possible Responses: Almost always (5); Daily (4); Weekly (3); Monthly (2); Almost never (1); No Response.

Table 6: Use of the Career Development Model

Question	Almost Always	Daily	Weekly	Monthly	Almost Never	No Response
Personal Use	14	40	35	7	4	1
Customer Use	0	15	36	19	25	6

Survey Questions focused on Support for Learning to work with the CDM:

What are you personally doing to increase your own ability to work with the CDM more easily in your daily HR activities? (Example: Working with the C-Map Writer (an on-line tool) once a week to prepare sample skill maps for my customers.)

Figure 2

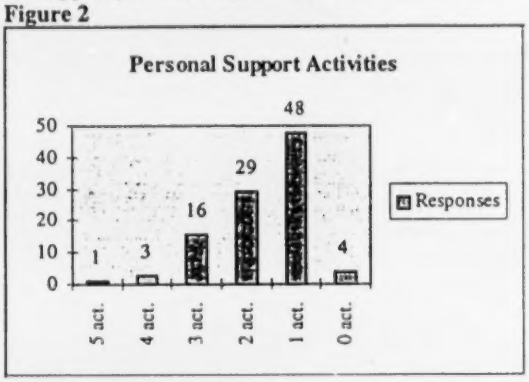


Table 7: Personal Support Activities

	Creating my own job aids	Developing job aids with others	Using job aids	Participating in CDM-related meetings and lunches	Bringing up CDM-related ideas in conversations	Learning to do more with the C-Map Writer tool	Other
Responses	6	8	18	20	67	41	11

What is your operating group doing to help you learn to work with the CDM in daily HR activities? (Example: Lunch & Learn "Brown-Bags" to share CDM-related best practices and ideas.)

Figure 3

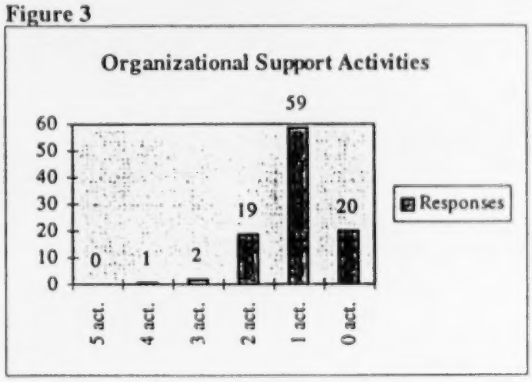


Table 8: Organizational Support Activities

	Job Aids are Developed and Shared	Regular Cross-Functional Team Meetings	Weekly Meetings	Informal Conversations	Lunch and Learn "Brown Bags"	Other
Responses	7	18	7	54	6	15

What are you and your operating group doing to help customers learn how to work with the CDM in their dealings with you? (Example: Taking the time to walk a customer through the C-Map and proficiency plan when speaking about staffing issues.)

Figure 4

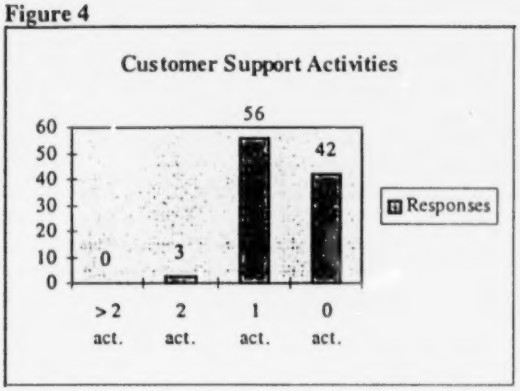


Table 9: Customer Support Activities

	Talking about the CDM in routine conversations	Making special CDM-focused calls	Asking questions using CDM terms	Making recommendations using CDM terms	Other Activities
Responses	59	3	51	38	8

Conclusions:

Research Question 1: Can participants use the Performance Change Curve (see Figure 1) as a common framework by which to measure targeted performance change? Results of the "3-months after" survey indicated that respondents were able to measure their targeted performance change against the benchmark offered by the Performance Change Curve, both in terms of growth and absence of growth.

Research Question 2: Will the data regarding growth in targeted performance immediately after the workshop be consistent with the results of the "7-days after" survey? 77% of the respondents to the "7-days after" survey reported at least "moderate" growth in all four of the targeted performance areas. The wording for the four areas was slightly revised for the "3-months after" survey. 81% of respondents reported performance on at least the *Learn* level of the Performance Change Curve for all four of the targeted performance areas. 26 % moved to the *Learn* level or above in the CDM-related targeted performance; 24% moved to the *Learn* level or above in the area of working more effectively with cross-functional HR specialties. 13% moved to the *Learn* level or above in the area of reflecting on their work and implementing continuous improvement; 9% moved to the *Learn* level or above in the area of sharing their continuous improvement ideas with the organization and with their colleagues. These percentages are consistent with "moderate" growth. The data also suggests that the *Learn* level on the Performance Change Curve is a reasonable target for performance change in workshops of short duration.

Research Question 3: How much growth on the Performance Change Curve did learners experience in the three months following the workshop? 91% of respondents reported performance at the *Learn* level or above on the Performance Change Curve for all four of the targeted performance areas. 9% of respondents reported continued growth to at least the *Learn* level in the CDM-related targeted performance; 11% of respondents reported continued growth to at least the *Learn* level in the area of working more effectively with cross-functional HR specialties. 5% of respondents reported continued growth to at least the *Learn* level in the area of reflecting on their work and implementing continuous improvement; 6% of respondents reported continuing growth to at least the *Learn* level in the area of sharing their continuous improvement of ideas with the organization and with their colleagues. These results indicate that growth does extend beyond the completion date of the workshop. 72% of respondents reported performing on the *Practice* or *Apply* levels on the Performance Change Curve for all four areas of targeted

performance change at the end of the three-month period. (This may reflect a narrowing of focus with regard to implementing the targeted performance change.)

Research Question 4: Is there a correlation between frequency of personal use of the CDM and learning level on the Performance Change Curve in CDM-related targeted performance over the three months following the workshop? .) Using the Correlation functions available in Microsoft Excel, the correlation between these two variables was .0.46 (not statistically significant at the P = < .05 level).

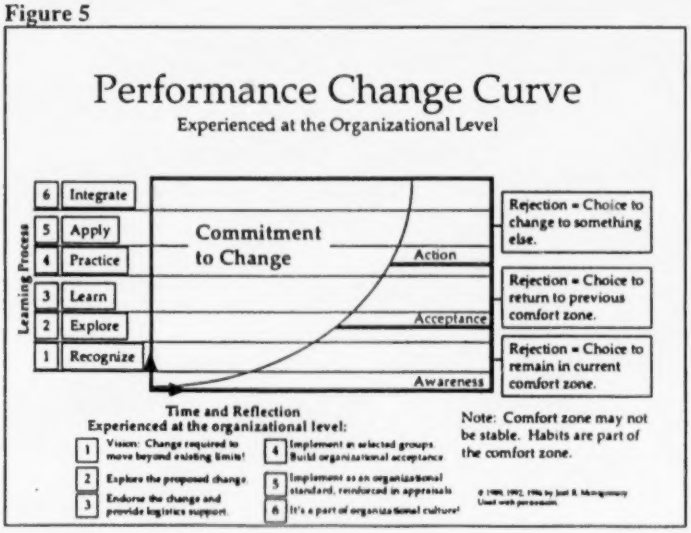
Research Question 5: What support activities have the learners experienced with regard to working with the CDM in the three months following the workshop? Possibilities included personal activities, organizational activities, and customer-focused activities. 96% of respondents reported being involved in one or more activities at the personal level (with 47.5% involved in only one activity). 80% of respondents reported being involved in one or more activities at the organizational level (with 58.4% involved in only one activity). 58% of respondents reported being involved in one or more customer-focused activities regarding the CDM (with 55.4% involved in only one activity). 69% of respondents indicated that their customers worked with the CDM in interactions with them at least monthly. Data regarding customer-support indicates that these activities have a lower priority than personal and organizational activities in understanding and working with the CDM.

The survey data indicates that learners who were actively involved in supporting their personal learning and in transferring knowledge to their internal customers also experienced growth along the Performance Change Curve for the targeted performance outcomes of the workshop. A follow-on survey is planned to ask respondents for the factors they experienced which inhibited growth along the Performance Change Curve.

Implications

This "3-months after" survey confirmed the results of the "7-days after" survey reported elsewhere (Montgomery, 1996e). The Performance Change Curve provided a reference point participants were able to use to benchmark their performance change. The electronic survey offered a collection approach learners were able to work with. Both the Performance Change Curve and this method of data collection and reporting, including both "7-days after" and "3-months after" surveys, are already being used to evaluate the effectiveness of other human resource development workshops at Andersen Consulting.

Figure 5


Performance Change Curve
Experienced at the Organizational Level
Learning Process
6 Integrate
5 Apply
4 Practice
3 Learn
2 Explore
1 Recognize
Commitment to Change
Action
Acceptance
Awareness
Rejection = Choice to change to something else.
Rejection = Choice to return to previous comfort zone.
Rejection = Choice to remain in current comfort zone.
Time and Reflection
Experienced at the organizational level:
Note: Comfort zone may not be stable. Habits are part of the comfort zone.

Performance Change Curve at the Organizational Level

The Performance Change Curve has implications at the organizational level (Montgomery, 1996a) (see Figure 5.) For the CDM-related performance change to become a part of firm culture, the organization needs to move through the learning levels on the curve. The need for this workshop indicated that AC is on the *Learn* level

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on the Performance Change Curve. More logistics support for implementing the CDM is required. The data regarding use by customers and the response to Research Question 5 indicate that support for this change is not uniform across the offices the participants were drawn from.

Organizations can work with the Performance Change Curve to evaluate their level of support and commitment to targeted performance change. Further research using the curve is needed to determine the usefulness of its details in tracking performance change at an organizational level.

The Performance Change Curve may also serve as a common benchmark for sponsors of human resource development programs to use to target performance change coming from human resource development programs. Participants in these programs and supervisors can use the same benchmark to identify the effectiveness of the programs and of the logistical measures in place to support performance change in the workplace.

How this Research Contributes to New Knowledge in HRD:

This research documents the effectiveness of a performance-focused human resources development workshop developed by and for Andersen Consulting's human resource professionals. This builds on the work introduced at the 1996 Conference of AHRD and documents the effectiveness of electronic surveys as a medium for data collection. The Performance Change Curve was used as a benchmark for self-report feedback by respondents to the survey and was adapted for use at the organizational level as well. These two versions of the Performance Change Curve represent innovations in thought in HRD literature. This study also builds on an earlier study (Montgomery, 1996e) to document the effectiveness of an Integrative Learning systems approach to designing human resource development programs.

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